ALPS
ALPS ELECTRIC CO., LTD.

User Guide Information to 2.4GHz ALPS Bluetooth™ Transceiver Module

Model UGPZ4

Caution: This user guide information is only provided to OEM or module installer.
Do not supply to the end user.

1. Introduction:

The ALPS, UGPZ4 with Bluetooth^{TM} wireless technology is a radio device that transmits and receives radio signals in accordance with the spectrum regulations for the 2.4 GHz unlicensed frequency range. The following table shows a major function.

Model No.	Major Function	Remarks
UGPZ4	1. Output Power; Bluetooth™ class 2.　2.5mW (+4dBm) Max. 2. On-board antenna provided. 3. Voltage regulator built in.　Rating of Input voltage: +3.3Vdc, +/-0.2V 4. Programmed 4Mbit built in 5. Reference oscillator built in 6.Operating temperature: Nominal; +15 ℃ to +35℃ 7. Regulatory frequency range 　　USA, Canada, Europe, Taiwan, Korea, China and Japan: 2400 – 2483.5MHz	Integrated antenna provided

Electrical features	Contents
Program memory	4M bit ROM
RAM	32k bytes
Reference oscillator	Built in
Sub clock oscillator	Built in
Serial data interface	UART(BCSP or H4)

2. Radio part

Bluetooth™ Transceiver Module, model UGPZ4 has fully integrated 2.4GHz radio transceiver with Class2 power, receiver and frequency-hopping synthesizer.
Then, UGPZ4 has also provision of Adaptive Frequency Hopping (AFH) that is used to improve the performance of physical links in the presence of interference as well as reducing the interference caused by physical links on other devices in the ISM band.　AFH shall only be used during the connection state.
In order to facilitate power management, each section of the radio may be powered up and down separately. Various software controllable switches have been implemented to control power to the transmitter, the frequency synthesizer/VCO, the receiver and the LNA, if provided.

3. Base band part

Bluetooth™ Transceiver Module contains link controller, which performs all the real-time functions of the Bluetooth™ baseband protocol layer, including data transfer and connection management. The device also controls states of operation enables sniff, park and hold modes of operation. Real-time functions such as frequency-hopping burst timing and clock synchronization are also implemented in this hardware. Further processing is required to format the data into the Bluetooth™ packet format before it may be applied to the GFSK modulator. On the receive side the controller performs error correction and de-scrambling before de-packetizing the incoming payload and storing it in RX buffers.
The link controller hardware also implements the basic, repetitive actions of paging, inquiry, page or inquiry scans and the general Bluetooth™ modes of park and sniff.　This ensures that the processor used to implement the Link Manager and other lower layer protocol can be kept inactive.

4. Eligibility requirements for regulatory approval:

As a part of regulatory certification, ALPS will provide an approval for certain countries in the form of modular approval (MA) .

The regulatory approval is required for each country throughout world where the end-user wishes to use ALPS UGPZ4 into entire end product, if no certification program for the modular approval exists in the country.

The countries that can accept MA include the USA, Canada, Taiwan, Korea, China, Japan and certain European countries.

The conditions for approval of ALPS UGPZ4 and related information for each country are described below.

ALPS wishes that our customer for end product would contact with us about what module of UGPZ4 has been certified for each country.

4.1 USA

4.1.1 Compliance statement to FCC

This module complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4. 1. 2 RF exposure compliance

This module may be installed into any end product in mobile device applications.

Because the module only radiates very low power levels, it complies with RF exposure requirements.

4.1.3 Requirements to end product

The following provisions for end product will be required on the FCC regulation, part 15.

(1) Antenna

ALPS wishes that our customer shall use the UGPZ4 module without any modifications including antenna.　If customer use a unique antenna, the FCC certification is required for the end product.

(2) Markings

To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product.

> **Contains Transmitter Module FCC ID: CWTUGPZ4**

Any similar wording that expresses the same meaning may be used.

(3) Caution to user for modification

The following caution is expressed on the user's instruction manual.

> **The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.**

(4) Compliance statement to FCC

The following statement is expressed on the user's instruction manual.

> **This module complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

4.2 Canada

In general, I.C (Industry Canada) follows the FCC in terms of emission levels and other regulatory requirements.

4.2.1 Compliance statement for IC

This device complies with Industry Canada RSS-210. Operation is subject to the following conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4.2.2 RF exposure compliance

(1) This module may be installed into any end product in mobile device applications.
    Because the module only radiates very low power level, it complies with RF exposure requirements.
(2) The installer of this device must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb.

4.2.3 Meaning of certification number

The meaning of the marking of "IC:1788F-UGPZ4" on the UGPZ module means: "1788F-UGPZ4" is the certification number, and the term "IC' before the equipment certification number only signifies that Industry Canada technical specifications were met.

4.2.4 Requirements to end product

The following provisions for end product will be required on the Canada regulation.

(1) Antenna

ALPS wishes that our customer use the UGPZ4 module without any modifications including antenna.
If customer use a unique antenna, the I.C certification is required for the end product.

(2) Markings

To satisfy Industry Canada exterior labeling requirements, the following text must be placed on the exterior of the end product.

Contains Transmitter Module IC: 1788F-UGPZ4

Any similar wording that expresses the same meaning may be used.

4.3 Europe

The UGPZ4 module with CE marking will assist our customer into advance.
The end product containing UGPZ4 module with CE marking will be required further involvement of R&TTE directive Notified Body, where the end product installs UGPZ4 module with no modification of the antenna   in conformance with ALPS's installation instructions.
The our customer of the end product is in doubt then the end product integrating the UGPZ4 module must be assessed against Article 3.2 of the R&TTE Directive.

Note: The our customer for the end product containing UGPZ4 module without CE marking shall be required
        further application to R&TTE directive.

4.4 Japan
4.4.1 Radio law (TELEC or other registered testing house)
The our customer for the end product will not require the certification of TELEC or other registered testing house for the end product, where UGPZ4 module with TELEC or other registered testing house certification shall be incorporated in the following applications.

(1) Antenna
ALPS wishes that our customer shall use the UGPZ4 module without any modifications including antenna. If customer use a unique antenna, the re-certification to TELEC or other registered testing house will be required for the UGPZ4 module.
Thus, our customer would be required to contact with ALPS before the modification of the antenna.

(2) The outer cabinet of the end product shall be fixed by easily access method, such fixing with plus / minus screws to open the outer cabinet by general public.
The permanently fixing method, such using security screws are not allowed for mounting method.
The labeling to exterior of the end product has a meaning of "Contains transmitter device certified under Japanese radio law ", or similar wording. (see below)

> **"Contains transmitter device certified under Japanese radio law "**

(3) Where outer cabinet of the end product containing UGPZ4 module is secured by the permanently securing method, such using security screws, the our customer for the end product shall obtain TELEC or other registered testing house certification by themselves for the end product, even if UGPZ4 module has been certified by TELEC or other registered testing house.

4.4.2   Telecommunications law (JATE or other registered testing house)
(1) The end product containing UGPZ4 module shall be certified by JATE, where the end product is **directly or indirectly connected** to telecommunication line, such public telephone, even if UGPZ4 module has been certified by JATE or other registered testing house, or not.

(2) Since the UGPZ4 module **is not certified** by JATE or other registered testing house, our customer for the end product containing UGPZ4 module would be required as that;
a) In case of that outer cabinet is fixed by easily access method, such fixing with plus / minus screws to open the outer cabinet by general public, the user manual for the end product has a caution to the end user about the meaning of **"Easily removable wireless transmitter is integrated"**, or similar wording. (see below)

> **"Easily removable wireless transmitter is integrated"**

Any similar wording that expresses the same meaning may be used.

b) Where outer cabinet is secured by the permanently securing method, such using security screws, the our customer for the end product shall obtain JATE or other registered testing house certification by themselves for the end product, even if UGPZ4 module has been certified by JATE or other registered testing house, or not.

4.4.3 Wireless LAN voluntary standard (ARIB)

ARIB STD-T66 is a voluntary standard in Japan.

However, ALPS strongly recommend providing the following application for the end product.

(1) User manual.

The user manual specifies the following cautions or similar meanings and explanation of markings indicated on the end product.

<CAUTION>

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                              (              )                    (
         )                                       )
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(2) Sticker

The end product provides a sticker describing the same cautions of user manual.

There are no specifications for material, size and shape.

(3) Catalogue, pamphlet and web site

The catalogue, pamphlet and web site for the end product specify the meaning of same cautions of user manual and meaning of markings shown In the end product.

(4) Markings on end product

The following markings are marked on the end product and its package.

The user manual describes the meaning of the markings.

If there is no spacing on the end product, the sticker is used as an alternate.

<Markings on end product>

2.4 FH x

1) " 2.4 " means radio operated in 2.4 GHz bands.
2) " FH " means modulating type, FH-SS.
3) " x " means that distance for interference is less than "y" m on the assumption.

Product No.	UGPZ4
Output power	+3.0dBm / 0.002W max.
"x"	1
"y"	10m

4) "　　　　　　" means the product is used in all frequency band from 2400MHz to 2483.5MHz and there are no possibilities of an avoidance to the other bands.

4.5 People's Republic of China

The UGPZ4 module has the following information on China certification.
1) Manufacturer
    ALPS ELECTRIC CO., LTD
2) Model number
    UGPZ4
3) CMII ID:xxxxZZZZZZ

4.6 Korea

The UGPZ4 module has the following information on Korea certification.
1) Manufacturer
    ALPS ELECTRIC CO., LTD
2) Model number
    UGPZ4
3) Marking
    MIC marking and certification number

Note:

1. The BLUETOOTH ^{TM} are owned by Bluetooth SIG, Inc., U.S.A.